

REMARKS

Reconsideration and allowance of this application are respectfully requested. The claims are not amended at this time.

Rejections of claims 5-18 under 35 U.S.C. 112

These claimed inventions are directed to a multi-transmittance photomask having a first Cr layer, a phase-shifting layer, a second Cr layer and a third Cr layer formed on the quartz substrate. The second and third Cr layers have different transmittances from each other. Generally, a pure Cr layer not having impurities therein reflects light. Thus, light cannot be transmitted through a pure Cr layer. Accordingly, impurities are doped in the Cr layer to provide for transmittance of light. As set forth in claims 5 and 18, since the second and third Cr layers have different transmittances from each other, it means that the second and third Cr layers are doped with different concentrations of impurities. Even if an impurity doping process is not specifically mentioned in the description, it should be apparent to one of ordinary skill in the art to which these inventions pertain to dope impurities to the Cr layer to provide for transmittance of light. Also, since the different impurities are doped into the second and the third Cr layer, the third Cr layer can be selectively etched without etching the second Cr layer.

Rejections of claims 1 and 5-18 under 35 U.S.C. 103

These grounds of rejection are respectfully traversed. As mentioned above, these inventions provides a multi-transmittance photomask having a first Cr layer, a phase-shifting layer, a second Cr layer and a third Cr layer formed on the quartz substrate. Since the phase-shifting layer is formed between the Cr layers, phase-shifting can be easily carried out. These inventions suggest a combination of a phase shifting layer and a light absorption layer.

The cited references do not specifically teach or even suggest the use of a phase shifting layer with a light absorption layer. According to the Examiner, a phase shifting layer is disclosed in the newly cited reference, U.S. Patent No. 5354632 to Dao et al., and the multilayered phase shift mask is disclosed in the cited reference, Isao. Therefore, the Examiner reasons, our combinations of structures are unpatentable over Isao and Dao. Applicant respectfully disagrees.

The cited references do not teach or even suggest our claimed combinations of a Cr layer and a phase shifting layer. Thus, Applicant believes that the claimed inventions are patentable over these cited references.

All outstanding matters having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,
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